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CATTLE CAR TO CABOOSE, B&O CLASS I-13 KITBASH BUILDING THE POINT OF ROCKS TOOL HOUSE

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Cover Photos – Top, B&O I-13 Caboose – Chris Tilley photo. Bottom, Point of Rocks Tool House, Bruce Elliott photo.

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UPDATES AND ERRATA

CATTLE CAR TO CABOOSE, B&O CLASS I-13 KITBASH

BY: CHRIS TILLEY

PHOTOS BY AUTHORS UNLESS OTHERWISE SPECIFIED.



Introduction

This is another article in the series on B&O caboose kit bashes, written while northbound onboard Amtrak's 1090 on a beautiful fall day. The Baltimore and Ohio Railroad responded to the tremendously increased demands for freight traffic during World War II by increasing capacity to the extent possible prior to U.S. entry into the war. One thing they needed in large numbers was cabooses. However, due to restrictions on the use of steel for items other than tanks, warships and aircraft, B&O had to be creative to fill their needs. They would have preferred more of their recently developed I-12 wagon tops, or even perhaps more I-7 type cars, had the steel been available. Born of this need were B&O caboose classes I-13, I-14 and I-16, 1:1 scale kitbashes from a variety of revenue and non-revenue cars already on the property.

During the 1920s, the B&O absorbed a number of smaller lines in their desire to reach the Midwestern markets such as Chicago and St. Louis and better ports on the Great Lakes. Among the other things the B&O acquired during the takeover of the operations of the Cincinnati, Indianapolis and Western Railroad (CI&W) in 1927 were 49 Class L-6 class stock cars (numbers 651-700, built by Haskell and Barker Co. in 1916) which were renumbered into the B&O system as 13000 – 13048.

The first two cars were converted at Mount Clare Shops in April of 1941. The 34 remaining conversions were completed at the B&O's Washington, Indiana shops later that year. The slatted horizontal siding was removed and replaced with normal "two for one" caboose siding, a 5" wide tongue and groove board with a groove down the middle which made it appear as two 2-1/2" boards. The fabricated steel bay window assembly was placed in the door openings and windows were added to the sides. Normal caboose equipment was installed in the interior. The 1996 *Sentinel* article by Dwight Jones and Gary Schlerf has a number of excellent prototype pictures both inside and out. The available photographic evidence seems to indicate that these cabooses were used system-wide, but I have never seen any in the videos of the helper districts in the mountainous regions around Sand Patch or the West End. One I-13, without the bay window, even made it as far as Staten Island as a caboose on the SIRT. This fact leads me to mention that some I-13's had their bay windows removed and replaced with siding, most without additional windows, but the C-1832 on the SIRT had the third side window. For those modeling the early 1970s era, several of these cars received plywood over the sheathing.



B&O C-1817 (Gary Mittner photo).



the windows will be in the wrong place. Be sure to cut the windows and bay opening before gluing up the wall assembly. Note that there is a full board on the outboard edge of the two small window openings

(2 feet x 2 feet), but in the photos it is partially covered by the steel upright. Total length of the side is 30 feet 9 inches.

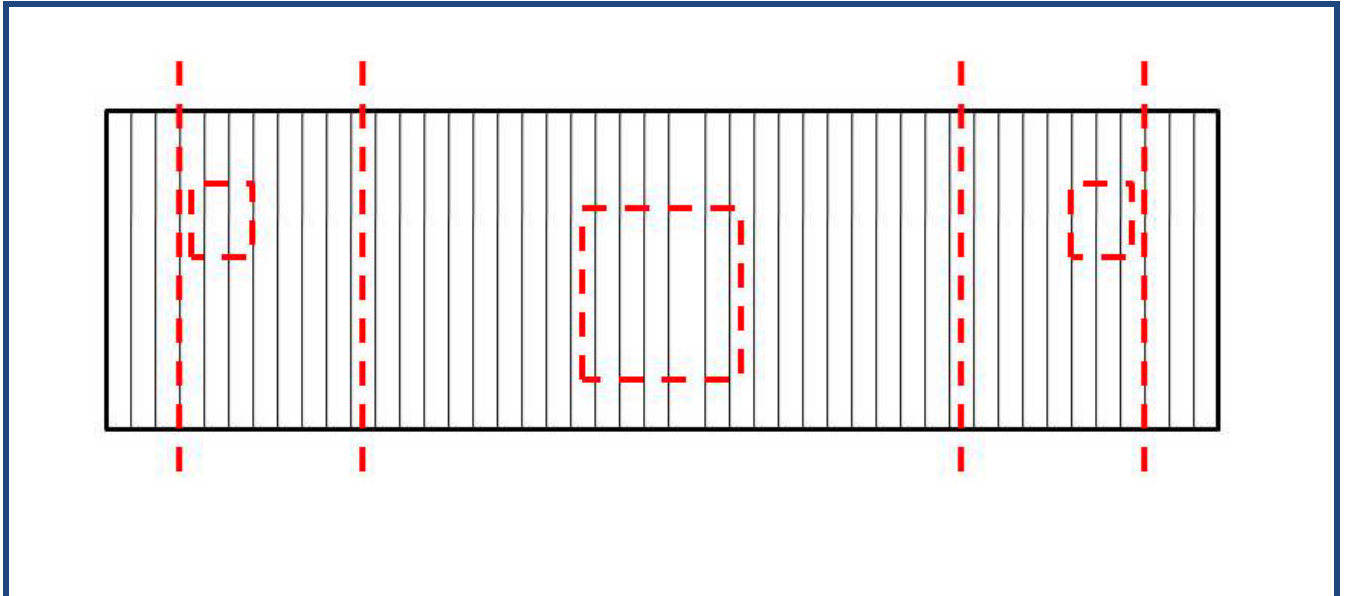


Figure 1 - Cuts made along dotted red lines. It is much easier to cut windows out before gluing up the entire side. Note small opening behind bay window for added model strength. The end windows are 2 feet x 2 feet. The end section is 3 boards or about 9 inches. The second section is 6 feet. The center section is 17 feet.

Once the panels are cut to proper size, a piece of Evergreen styrene angle (No. 291) is inserted with the flat sides to the outside and to the end of the car. The next panel tucks in behind the overlap of the L. It is important to make sure that the L remains plumb – the outer face of the L must be parallel to the siding and held in place until dry. A toothpick under the

edge makes a good jig. Note that the styrene angle is nine inches longer than the siding so that it actually extends to the bottom of the underframe when installed. This angle may have been a Z shaped angle on the prototype, but nobody made that in styrene when this model was built.



Figure 2 - Note orientation of angles. Angles adjacent to bay window assembly are superficial and not between panels for added strength. Not to scale.

The ends are constructed in much the same way as the sides. The V groove siding is cut to the width of the underframe, but shorter than the sides so it can sit atop the end platform. The window and door openings are cut in and an additional layer of styrene makes up the door. Styrene strips make up the door details and window frames. All the window sashes are constructed by cutting the main opening in the wall, then gluing another layer of thinner .010" styrene behind the opening and cutting the hole to the

appropriate size with a nibbler and files. The window frame also has a frame around the outside which is made from .010" x .020" strips in a very tedious operation. This one is best done with ACC because the pieces are so small that the solvent cement will destroy them. The end platforms are made from the same scribed siding, with the grooves perpendicular to the long axis of the car. The floor boards inside the carbody, however, run parallel to the rails.



Measure the sides and underframe to determine the center of each. Attach one side to the underframe and barely tack with ACC, remembering that the siding overlaps the underframe by about 9 inches. Attach the ends of the carbody to the floor and the installed side. Add the remaining side in the same manner. Once satisfied that it is all square and plumb, add interior corner braces of .060" x .060" styrene strip with regular styrene solvent cement. Go back and glue the sides to the underframe from the inside, allowing capillary action to draw the liquid cement into the joint. Add a similar styrene strip along the inside top of the walls and ends for a stronger roof joint later. This will relieve some of the stresses on the end railings which are weaker due to their construction.

The roof of this car was made from a sheet of .016" brass sheet, cut with scissors and lightly scored down the centerline with an X-Acto blade for a crisp bend. The roof sheet was bent to the proper profile and .020" styrene fascia boards were cut to fit the ends, allowing for a .015" thick strip on either end of the fascia. The side rake board is a strip of .015" x .100" styrene strip with a bevel sanded on the top edge to allow for a good fit with the brass roof sheet. This

will actually allow for a removable roof and additional detail opportunities if desired. The problem with this car is the height. Since it was converted from a freight car, it is much taller than a "normal" caboose. There are no known pictures showing the details of the roof. One must extrapolate what the roof must have looked like, based on common practice of the day. In this case, details on the roof were simulated by gluing on .020" x .030" styrene strips on 30 inch centers to simulate the seams and a running board and end walks made from Kappler 2x10 stripwood. There is an excellent photo on page 59 of Dwight Jones' book which shows the running board and endwalk from ground level. It is readily apparent that the endwalk boards are parallel to those of the running board contrary to normal practice.

The second hardest part of this car to make is the bay window assembly. It is constructed of .030" styrene sheet with beveled edges to make good seams. The prototype had no seams but there is a vertical row of very small rivets centered below the bay window (not visible on all cars) and along the edges of the bay window assembly. Some of the later cars also show four LARGE rivets horizontally below the center

window. All of these rivets are very difficult to replicate even with a NWSL Riveter. Perhaps a better solution for this application would be the newly marketed rivet decals from Archer Surface Details. These are available in different head sizes and spacing. Archer products are available online at <http://www.archertransfers.com>. Making one bay window assembly is not really hard, but making two identical assemblies is really hard. Casting two from the original might be a way to attack this problem. The side of the bay is 4 feet 3 inches by 8 feet. The two ends of the bay are 2 feet by 8 feet. The angle is about 30 degrees. Bevel the edges. The top and bottom are .030" styrene sheet. Once everything sets up, cut in the windows. The big window is 3 feet by 2 feet. The smaller ones are 1 foot 3 inches by 2 feet. They are all 3 feet up from the bottom of the bay.

The ends were the hardest part of this car to make. The shop photo of C-1800 at Mount Clare stamped 2132 makes it very clear that the corner posts are L angles and the inboard posts are Z angles. In this case, there was no way around it, so I assembled Evergreen angle (No. 291) and plain strip styrene to create Z shaped angles. Horizontal members and intermediate uprights vary by car and by time period, so consult photos of the car in question for accuracy. The best way to construct this sub-assembly is to draw it full scale on a piece of foam-core poster board, cutting all the pieces and laying them out on the diagram, then pinning them all in place with straight pins getting everything in line and applying solvent cement with a brush. Be sure to drill the holes for the horizontal railing and ladder rungs before assembling (.012" brass wire). The same principle applies if using brass angles instead of styrene but do it on a piece of lumber or a soldering pad. Although a brass assembly is considerably stronger than styrene, the brass to styrene joint is significantly weaker than the styrene to styrene joint with the end.

Painting and Lettering

Leave off the roof for now, to allow for painting, glazing and interior detailing if desired. Paint the carbody Floquil Caboose Red and allow to dry. The siderails of the underframe are the same color. The door was green in all the color photos taken from an angle which allowed viewing the door. On the Yellow C&O version of 1971, the door was the same yellow as the carbody. In the original lettering version of 1941, the roadname was spelled out to the

right of the bay window, the number was centered under the window on the bay and the simplified "Kuhler Capitol Dome" herald was centered in the panel to the left of the bay window. Around 1948, the "13 Great States" herald began to be applied to wooden bay window cabooses. According to Hubler's book, there is photographic evidence of the roadname to the left of the bay and the herald to the right, so, again, check photos for maximum accuracy.

Some of the more interesting details that are easy to miss at first glance: C-1800 had a very narrow single slot version of the slot back caboose step (about half normal width) along with a formed steel stirrup step to the inboard side. Later versions had a slightly larger than normal slot back step with two slots on the top step and a small door in the center of the bottom step to allow servicing of the bearing journal behind it. The ladder extensions above the level of the roof are not the same on both ends of the car for some reason. One end appears about 18 inches taller than those on the other end. C-1800 and probably C-1801 began life with a single brakewheel facing away from the operator on the platform. Later photos of all the cars in this series show brakewheels at both ends facing inboard for ease of operation. Note the small square with two rivets on the side of the underframe adjacent to each of the vertical angles. This is to simulate the use of a Z shaped bar instead of an L shape. On most photos this is apparent, but not all. Recreate this feature using a square of .015" styrene sheet with a couple of rivets embossed thereon. The window shades were made from cardstock. Begin by cutting a piece scale 3 feet 6 inches by 1 foot. Mark 9 inches in from each end. Cut from that mark to the end to form a bay window shape and fold along that line to form the window shade.

As these cars aged, braces and brackets were added in various locations to increase structural rigidity. The most noticeable are the strip brackets added to the bay windows where they attach to the wooden walls. In the model, these were depicted by .010" x .020" styrene strip with four rivets per strip. Some of the gussets on the end railings and angles appear to have grown over the years as well and some of these cars had quarter circle "quadrant" handrails on the sides of the carbody, while some had L shape and some had the "20 degrees off from L" shape. Final details include Cal Scale Marker Light (No. 190-312) mounted to the corner post. This location varies slightly in photographs.

Bill of Materials

Manufacturer	Part Number	Description
Badger Modelflex Paints http://www.badgerairbrush.com/Modelflex_3.asp	16-62	D&RGW Gold
Cal-Scale http://www.bowser-trains.com/hooter/calscale/calscale.htm	190-312	Caboose Marker Lamps
Floquil Model Paints http://www.testors.com/category/133504/Floquil	F110020	Caboose Red
Detail Associates	229-2504	.012" Brass Wire
Evergreen http://www.evergreenscalemodels.com/	100 101 115 121 153 291 2030 9015 9030	.010" x .020" Styrene Strip .010" x .030" Styrene Strip .015" x .100" Styrene Strip .020" x .030" Styrene Strip .060" x .060" Styrene Strip .060" Styrene Angle .030" Styrene V-Groove Siding .015" Styrene Sheet .030" Styrene Sheet
Kadee http://www.kadee.com	509	Andrews Trucks
Kappler Mill & Lumber Co. http://www.kapplerusa.com	KP1126	2x10 HO Scale Lumber
K&S Engineering http://www.ksmetals.com	--	.016" Brass Sheet
Intermountain http://www.intermountain-railway.com	P40400-16	40 foot Boxcar Underframe

Acknowledgements

Nick Fry, Bob Hubler, Gary Mittner.

References

Baltimore & Ohio Color Guide to Freight and Passenger Equipment, Craig T. Bossler, Morning Sun Books, Edison, NJ, 1996, pp 98-99.

Baltimore & Ohio Caboose Vol. 1 – Photos and Diagrams. Dwight Jones, TLC Publishing, Lynchburg, VA, 1998, pp 58-59.

Caboose of the Baltimore & Ohio Railroad, Robert Hubler pp. 81-83.

"Collection Consist IV – From hogs to conductors, this car hauled them all", Dwight Jones & Gary Schlerf, *The Sentinel*, Volume 18 Number 6, November/December 1996.

Freight Car Equipment 1917-1960, Compiled by Richard K. Daniels, Baltimore & Ohio Railroad Historical Society.



WHEN YOU DON'T HAVE A PLAN: BUILDING THE POINT OF ROCKS TOOL HOUSE

BY BRUCE ELLIOTT

PHOTOS BY AUTHOR UNLESS OTHERWISE SPECIFIED.



Introduction

Many Society members have been to Point of Rocks, some more often than others. The station dominates the scene and many people have built the kit brought out by Model Tech Studios about 10 years ago. It's not, however, the only structure that was there. There were at least six support structures as well: The division superintendent's office (over the maintenance of way shop), KG tower, a lunch room, freight station, water tower, and the section tool house. So far, I have the station, and have built the water tower and maintenance of way shop.

That brings us to the point of this article. Photos of the section tool house that was located where the single leg of the wye met the Old Main Line are few and far between, and plans are even scarcer—in fact, I'm not aware of any. So how do you build it? Well, you take the photos that you have and start measuring. What did he say? Measure a photo? Ok, it isn't that hard. Both of my photos are three-quarter shots looking east. That means that I don't know what the other two sides look like. Murphy's Law says that after I get the model completed, someone

will come up with a photo to prove my guess about the other two sides right or wrong.

The prototype structure was built with board and batten construction. So here is where looking with your eyes gives you your measurements. Pore over the photo and get a sense of the spaces between battens. Then, if like me you're going to build the shed from Evergreen styrene, pick out a sheet of board and batten that appears to have the same space as the photo. I used Evergreen No. 4544.

Proceed in the same general manner if you're using some other material. This model was built with Evergreen sheet and strip styrene except for the end window (which is from Grandt Line) and the doors, which are wood. The next step requires a good, sharp photo showing all the battens—we have to count them. Let's see, that's 19 battens by 38 battens, or a footprint of 17 feet by 34 feet 6 inches. We're making progress; now we have dimensions to scale down to cut the sides and ends to length.



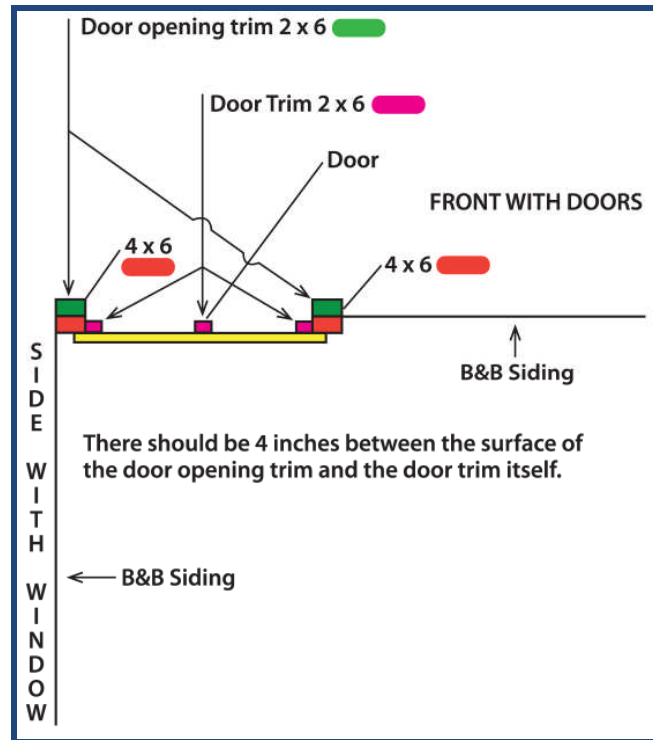
But that's not enough. Now this gets a little tricky. How tall are the sides? How big are the doors? In drawings of section tool houses the doors are square, 6 feet by 6 inches. Using this, and looking at the space apparent between the top of the doors and the top of the wall, I figured the height to be about 10 feet 6 inches.

The doors appear to have even space between them, and are flush with the ends. This gives us a scale 4 feet 6 inches between doors. The door openings needed some depth to them, so I used 4" x 6" strips to

achieve this; the 4 inches for depth and the 6 inches for gluing support for the strip and the door itself. The door openings were trimmed with 2" x 6" strips, as were the door trim. See the accompanying drawing.

The end roof peak appears to be just a little less than twice as high as the sides. Since we now know those are 10 feet 6 inches, my eyeball says the peak should be about 18 feet above the ground. Now you have enough information to cut out the sides and ends.





The window is centered, and is four battens wide. That's an opening of 2 feet 9 inches by what looks like twice the width. That makes it at least 5 feet high. I'm guesstimating that the bottom of the window is another 2 feet 9 inches off the ground. Get into your Tichy or Grandt Line catalog and look for

something you think will be suitable. But remember: Both manufacturers list their windows' dimensions over the glass. The castings you get will probably be a foot more in each direction, to account for the framing.



The roof base is .030" sheet styrene, with 4"x8" trim on the ends. The prototype in the photo appears to have rolled roofing on it. This was done with Kodak

paper that was used as a spacer between sheets of 4"x5" film that dad used in large-format photography. This paper has an enormous resistance

to fading from exposure to light. The paper was cut to size and a spray adhesive was used to secure it to the roof.

The building was painted in Floquil Depot Buff and Engine black. At this time there is no way to know what the measurements and dimensions of the building are, but the model appears to follow the photo. For my purposes this will work just fine.

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